4 S4
No. 44

WILDLIFE REVIEW

AN ABSTRACTING SERVICE FOR WILDLIFE MANAGEMENT
ISSUED FOR THE INFORMATION OF COOPERATORS
BY THE FISH AND WILDLIFE SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

RECEIVED
JUL 24 1952
U.S. Bureau of Biological Survey
24938

CONTENTS

	Page
Abstracts:	
Bibliography	2
Classification	2
Conservation	2
Control	4
Cycles	8
Destruction	8
Diseases and parasites	10
Ecology	16
Economics	16
Food habits	17
Abstracts--Continued	
Life histories	20
Management	24
Natural history	30
Predation	32
Propagation	33
Research	33
Weights	34
Wildlife leaflets	34
Notes and news	35
Author index for this issue	37

Chicago, Ill. No. 44 October, 1945

Bibliography: Nature books

Treat, Dorothy A. Guides to the out of doors. A nature book list. School Nature League Bul. (National Audubon Society, 1006 Fifth Ave., New York, 28, N. Y. 10 cents a copy), 15(9), May 1945, [4 pp.].

A classified list, giving the addresses of publishers and prices, of both books and periodicals.

Classification: Sciuridae

Bryant, Monroe D. Phylogeny of nearctic Sciuridae, American Midland Naturalist (Notre Dame, Ind. $1.00 a copy), 33(2), March 1945, pp. 257-390, 8 pls., 48 figs., 1 table.

Illustrated, technical discussion of characters (both external and internal) available for taxonomic use; account of fossil remains of squirrels, including descriptions of new forms and check list; discussion, diagnosis of the genera and subgenera, and outline of classification. Four-page bibliography.

Classification: Weasels

Hall, E. Raymond. A revised classification of the American ermines with description of a new subspecies from the western Great Lakes region, Journ. Mammalogy (Wm. H. Burt, University of Michigan, Ann Arbor. $1.00 a copy), 26(2), May 1945, pp. 175-182, 1 fig. (map).

Citation of original description and type locality, and statement of range (also mapped) for 20 subspecies of Mustela erminea.

Conservation

Taylor, Walter P. Wildlife and the farming industry, Rep. Kansas State Bd. Agric. (J. C. Mohler, Kansas State Board of Agriculture, Topeka), 64(266), April 1945, pp. 21-29 (Portrait of speaker).

Address on importance of wildlife to man, touching on both useful and injurious forms and their management, especially on farms and ranches. Sale of hunting rights is a notable source of income in Kerr County, Texas. Cooperative research and Federal aid in wildlife conservation are discussed as are also the relation of erosion control and forest conservation to wildlife preservation. A sane conservation program is an economic necessity. The message is amplified in two pages of questions and answers.

Conservation: Condor, California

Holland, Henrietta. America's largest flyer, Fauna (Zoological Society of Philadelphia, 34th St. and Girard Ave., Philadelphia, 4, Pa. 35 cents a copy), 7(3), Sept. 1945, pp. 86-89, 4 photos.

History of knowledge of the condor, notes on its habits, food, former and present range, and vicissitudes. Probably 75 or more of the birds still exist in a restricted environment and there is no reason to believe that any of them have been killed by man in recent years.

Conservation: Dove, Mourning.

Lincoln, Frederick C. The mourning dove as a game bird, U. S. Fish and Wildlife Service, Circular 10 (Supt. of Documents, Washington 25, D. C. 5 cents a copy), 8 pp., 5 figs., 1945.

Information on the breeding and wintering ranges and migration of the dove, its prolonged breeding season resulting in young being in the nest at times when shooting seasons have opened, growth of young, natural mortality, and management. The last section relates only to the setting of the shooting season. A foreward by Albert M. Day reads as follows: "The Fish and Wildlife Service has long urged delay in the opening of the hunting season on the mourning dove until October 1 or even later in the Southern States east of the Mississippi River. Because the hunters, lacking knowledge of the real need for delayed shooting, failed to support this stand, later September hunting has been permitted. Administrative agencies unfortunately cannot conduct management strictly on the basis of the needs of the creatures involved, but have in addition the problem of managing the hunters--just as important and often more difficult than managing the birds. Without public support the soundest restrictions are likely to fail. It is hoped that this leaflet will contribute to a better public understanding--the most pressing need in present mourning dove management."

Conservation: In England

Anon. Memorandum on Wildlife Conservation and Ecological Research from the National Standpoint. Drawn up by the British Ecological Society (Cambridge University Press, 200 Euston Road, London, N. W.1, England. 6 pence a copy), 15 pp., 1945.

Arguments for the establishment of a Conservation Council, including review of the existing state of affairs, statement of needs, previous proposals and recent action, and recommendations as to a single national authority which should--"(a) be empowered to pursue a scientific policy for the advancement of ecological knowledge; (b) be free to spend their grant-in-aid at their own discretion and to undertake research themselves either in research institutions of their own or elsewhere; (c) be responsible for the scientific oversight of all the work of the Biological Survey; (d) be responsible for the acquisition, holding and scientific administration of the National Reserves, which would in some respects be comparable to field stations for the conduct of the observational and experimental work for which the Council would be responsible; (e) have the duty of supplying, when possible, facts and advice, not only in response to bona fide inquiries whether from official or unofficial sources, but also on their own initiative to any Department or other public or quasi-public body concerned; (f) be required to act generally as a clearing house for ecological information."

MAIN LIBRARY

Conservation: In England

Dower, John. National Parks in England and Wales (H. M. Stationery Office, York House, Kingsway, London, W. C. 2, England. 1 shilling a copy), 57 pp., 2 maps, 1945.

General considerations in connection with a national park program. Wildlife is specifically treated in sections on rambling in relation to grouse moors, conservation of wildlife, and nature reserves. "It may safely be said that every district and almost every parish throughout rural England and Wales contains some species of wild plants, of birds and other animals which it is worth while to protect for one reason or another--scientific, economic or aesthetic." But "it cannot be said that we have yet got x x x any national policy for the conservation of wild life." Suggestions are made as to a Wild Life Conservation Council (mainly advisory), conservation education, better law enforcement, and establishment of properly guarded species and habitat reserves.

A report on "National Parks, a Scottish Survey" (27 pp., 1 map, 1945. H. M. Stationery Office, Edinburgh, Scotland) makes recommendations, which if acted upon, will forward wildlife conservation, but contains direct reference only to deer forests.

Conservation: In Great Britain

Tansley, A. G. Our heritage of wild nature. A plea for organized nature conservation (Cambridge University Press, American Agent, The Macmillan Co., 60 Fifth Ave., New York 11, N. Y. $2.50 a copy), viii+74 pp., 26 photos, 1945.

The present aspect of most of the British countryside is man-made, yet through the healing power of vegetation it has beauty that should so far as possible be preserved. Wildlife is interpreted as including "all kinds of native animals and plants which maintain themselves without human assistance." Its claim to recognition in plans for the future are those of beauty and educational value, and to some extent economic importance. The relations of Britain's wild animals to man are thoroughly discussed and management based on the results of research is recommended. Parallel chapters deal with vegetation. Reservations should be "managed as habitat reserves. If they are not they are of no use scientifically or educationally, and their scenic character is altered and often destroyed." Suggestions are made as to the management of reserves, preferably by an independent authority. National park and forest problems receive consideration and establishment of a National Wild Life Service is urged. Education is held to be fundamental to a proper public attitude toward nature.

Control: Botulism

Hazeltine, Benjamin W., and Vernon Ekdahl. "Paul Bunyan" rake for removal of marginal vegetation in botulism control, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 193-195, Pl. 8.

A combination raft, bull-dozer, and giant rake described and illustrated.

Control: Bounties

Jacobsen, W. C. The bounty system and predator control, California Fish and Game (Ferry Bldg., San Francisco 11, Calif.), 31(2), April 1945, pp. 53-63, 3 tables.

Review of experience with bounties in various states, with most attention to Utah and California. Arguments for, and objections to, bounty systems are discussed and the conclusion drawn that bounty plans have proved undesirable because "(1) They do not encourage concentration of effort against individual livestock and game killers; (2) they do not encourage work when and where most needed, e.g., in the difficult terrain of summer stock ranges, or to protect valuable game species; (3) they permit hunters to concentrate their efforts during the season when pelts are prime, and to leave predators unmolested at other seasons; (4) their early apparent value in turning in large numbers of animals dwindles until those left for 'seed' build up a population sufficiently large to make bounty hunting profitable again; (5) they lead to fraudulent practices such as: (a) making claims for predators taken outside the paying State or area, (b) releasing trapped females to maintain a breeding stock, (c) submitting counterfeit or substitute parts of animals not legally eligible for bounty collection; (6) they encourage theft of animals and equipment from co-operative and other law-abiding trappers; (7) they do not provide means of meeting emergencies, such as rabies outbreaks, or excessive livestock or game killings concentrated in isolated regions; (8) the tax imposed to cover bounty payments seems at times to be an extra burden on livestock owners, in that it returns so little in the way of predator control that they feel obliged to hire trappers at their own expense."

Control: Coyote

Hurd, C.A. Coyote control methods, Colorado Conservation Comments (Colorado Game and Fish Commission, Denver), 8(3), Sept. 1945, pp.9-10, (processed).

Den-hunting is recommended as the primary method, with steel trapping as a supplementary, but not a major, means. Poisoning and the use of cyanide guns are criticized as unduly destructuve of other animals. Legislation regulating the use of poisons is recommended.

Control: Coyote

Sampson, Frank W. The coyote problem in Missouri, Missouri Conservationist (Missouri Conservation Commission, Jefferson City), 6(7), July 1945, pp. 4-5, 14-15, 5 photos.

Coyotes are not always and everywhere inimical to man's interests. The food habits are reviewed and the role of "killers" discussed. In 1944, bounties were paid on 4,564 wolves or coyotes in Missouri. The characteristics, life history, diseases, and parasites of the coyote are briefly summarized.

Distinction from other predators is explained, both as to appearance and mode of attack. Cooperative control in Missouri is described, some of the methods set forth, and losses exemplified.

Control: Coyote

Young, Stanley P., and Harold W. Dobyns. Coyote control by means of den hunting, U. S. Dept. of the Interior, Fish and Wildlife Service, Circular 7 (Supt. of Documents, Washington, D. C. 5 cents a copy), 8 pp., 2 figs., 1945.

Den hunting is an important means of coyote control; qualifications and equipment of the hunter, breeding habits and number of young, and denning sites and habits of the animals are described; and suggestions made as to finding dens and destroying the young are.

Control: Effective new poison

Kalmbach, E. R. "Ten-eighty," a war-produced rodenticide, Science (Science Press, Lancaster, Pa. 15 cents a copy), 102(2644), Aug. 31, 1945, pp. 232-233.

One of a number (approximately indicated by its designation) prepared and tested in laboratories seemed effective enough for trial under field conditions. Compound 1080 (sodium fluoroacetate) is highly toxic to a variety of small mammals and must, therefore, be used with great care. There is some evidence that tolerance is acquired by ingestion of sublethal doses. However, in a field test in the Southern States, outstanding results in rat control were obtained. The poison was also found to be deadly to various rodents in the West. The manufacture of the poison is still on a small scale but in volume production, it probably will be relatively cheap. Its development assures this country of an effective and economic rodent poison regardless of future interruptions to the importation of squill and strychnine.

Control: Pheasant damage to corn

Mohler, Levi M. Pheasants in the corn, North Dakota Outdoors (State Game and Fish Department, Bismarck. 5 cents a copy), 8(2), Aug. 1945, pp. 13-14.

Protection of sprouting corn by distributing shelled ripe corn about the edges of field just as the planted grain is emerging from the ground. "Experience with repellents has generally not been too successful." Shooting is not recommended. Abundance of cutworms attracts pheasants and increases damage to corn.

Control: Rat by squill

Green, Dorr D. Red squill as a raticide, Soap and Sanitary Chemicals (Mac Nair-Dorland Co., Inc., 254 West 31st St., New York 1, N. Y.), 20(11), Nov. 1944, pp. 101-102, 133.

Essential qualities for an ideal rat poison are safety (as regards other animals), effectiveness, economy, and availability. Each of the principal substances long used in the United States--arsenic, barium carbonate, phosphorus, and strychnine--is "dangerous to all forms of wild and domestic animals and to human beings." Red squill, being more or less specific for rats, was a welcome addition to control facilities. Its source, a plant of the lily family (Urginea maritima), is described and its native and commercial ranges set forth. Studies were made to determine the cause of wide variation in toxicity of powdered squill bulbs and a method was devised of fortifying and standardizing the product. Other problems that arose also were overcome and the promise is that red squill will remain a dependable and economical means of rat control.

Control: Rat fleas

Davis, David E. The control of rat fleas (Xenopsylla cheopis) by DDT, Public Health Reports (Supt. of Documents, Washington 25, D. C. 10 cents a copy), 60(18), May 4, 1945, pp. 485-489, 3 tables.

Account of laboratory and field experiments. "The use of DDT to reduce the number of rat fleas is a practical procedure which may be useful in control of typhus fever."

Control: Skunk

Morris, R. F. On skunks and how to remove them, Acadian Naturalist (University of New Brunswick, Fredericton, N. B., Canada), 2(5), May 1945, pp. 34-39, Pl. 2.

Violent means result in discharges of scent and are usually undesirable anyway because of the economic value of the animals (a brief account of the food habits is given). Live-trapping and removal is recommended. The trap is described and illustrated. The skunks were released at distances of from 7 to 2.5 miles from the point of capture and none returned.

Control: Squirrel damage to pecans

Anon. Tin shield keeps squirrel damage low in orchard, Texas Game and Fish (Walton Bldg., Austin, Texas. 10 cents a copy), 3(6), May 1945, p. 15, 2 figs.

Description and illustration of shields which should be placed 5 to 10 feet from the ground and extend about 15 inches from the tree. General directions for their use are given.

Control: Turtles

[Schwartz, Charles W.] An efficient turtle trap, Missouri Conservationist (Missouri Conservation Commission, Jefferson City), 6(7), July 1945, p. 7, 1 photo.

Baited double-spring steel trap fastened to the underside of a floating board.

Cycles: Grouse, Ruffed

Bach, Roy N. First ruffed grouse census completed, North Dakota Outdoors (State Game and Fish Dept., Bismarck. 5 cents a copy), 7(10), April 1945, p. 6.

In 1940-41, strip counts in the Turtle Mountain region indicated a population of 100,000 birds; in 1944-45, there were only about a tenth as many. It is hoped to make a closer study of the cycle there.

Destruction: Auk, Great

Fisher, James. Alfred Newton and the auk, Bird Notes & News (82 Victoria St., London, S. W. 1, England. 1 shilling a copy), 21(5), Spring 1945, pp. 75-77.

Account of his study of the great auk, in which its final appearances in Iceland and the British Archipelago are related; there is some reference to the end of the bird in American waters, and a table of mounting prices of eggs of the bird from 1819 (12 shillings) to 1934 (315 pounds).

Destruction: Birds by storm

Hill, Norman P. The 1944 hurricane in New England, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 62(3), July 1945, pp. 410-413, 1 table.

Tabulation of records of birds apparently brought in by the wind and comment on mortality. "On Cape Cod, small land birds vanished from the coastal areas with the storm. There was no trace of them inland nor did they return so it seems likely they perished. A week later, the Starlings, Meadowlarks and Redwings were present in very small fractions of their expected populations. Also many gulls were found dead. It is obviously impossible to make a guess as to mortality among the Skimmers and terns, but a high one may be suspected."

Destruction: Birds by storm

McClure, H. Elliott. Effects of a tornado on bird life, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 62(3), July 1945, pp. 414-418, 1 pl.

Iowa. Description of the storm, its damage to vegetation, and destruction of birds. An estimated 1,000 were killed in a town 100 acres in extent. The storm apparently destroyed more than 90 percent of the birds in the path of its vortex. A month later the bird population (exclusive of English sparrows) was only 4 percent of normal.

Destruction: By DDT

Langford, R. R., et al. Reports on the effect of DDT and other insecticides on the natural fauna and flora of the forest, methods of application and spraying devices used. Research Division of Lands and Forests, Province of Ontario (Toronto), Res. Rep. 3, 53 pp., tables, 1945 (processed).

Field work was done and chapters contributed to the Report on wildlife by R. R. Langford, James Savage, E. B. S. Logier, C. E. Hope, R. E. Mackie, and other assistance rendered by L. L. Snyder, and A. F. Coventry. The experiments are recounted in some detail in accounts which contain data on natural food habits. Each chapter has a summary and there is a general discussion of the results, together with conclusions and recommendations by R. R. Langford from which the following excerpts are quoted: "It is clear that there would be little direct injury to mammals and birds even in large scale spraying operations. At the same time there is no doubt that insectivores of both groups would suffer indirectly from extensive killing of forest insects. The extent of this injury and the resultant effect on the predators of these animals is at present unknown and can only be assessed by population studies in experimental areas. Amphibians and reptiles would suffer a heavy death toll as the result of spraying. The natural fertility and migration of these species would probably enable the population to withstand such a depredation provided it were not too extensive or oft repeated." "It is impossible to predict accurately the indirect and extended effect resulting from the killing over large areas of the forest insects which are the food of such an assemblage of animals, many birds, insectivorous mammals, amphibians and fish. This effect and the effect on their predators could only be determined by population studies of experimental areas before and after spraying. Strip spraying or spraying the edge of an area infected with insect pests should not prove disastrous to the normal fauna of the forest provided the area sprayed is not too extensive nor the spraying repeated too often. Even under these conditions, in the first years of the work, it would be wise to check on the injury to the aquatic and terrestrial fauna of the area."

Destruction: Dove, White-winged

Jones, Chas. G. Past and present whitewings, Texas Game and Fish (Walton Bldg., Austin), 3(10), Sept. 1945, pp. 13, 18, 3 photos, col. cover illustration.

"Twenty years ago there were at least three million whitewings in the Rio Grande Valley." They were ruthlessly slaughtered, however, and wasted, often only the breasts being used. Even so, people in the Valley decided the season wasn't long enough, appealed and got one running from July 1 to November. Parent birds were destroyed and eggs and young perished in the nests by the thousands. The opening of the season was then advanced successively to August 8, August 20, and September 1. Then the whitewing came under the protection of the Federal Government and the season was further shortened. Loss of habitat is also working against the whitewing and it is a question whether shooting of the bird can continue.

Destruction: Mammals

Harper, Francis. Extinct and vanishing mammals of the Old World (American Committee for International Wild Life Protection, Zoological Park, New York 60, N.Y.), Special Publ. 12, xv 850 pp., frontispiece and 67 figs. 1945.

A companion volume relating to the Western Hemisphere was noted in WILDLIFE REVIEW No. 36, March 1943, p. 6; the author of that work, the late

Glover M. Allen, is a contributor to this. Summarizing vast bibliographic research, this work reviews the status of extinct and vanishing mammals for the world, by countries, and by half-century periods. Somewhat more than a hundred forms have been exterminated. The main body of this work consists of accounts of the extinct or threatened mammals by species and often by subspecies. Reference to the original (and sometimes other) scientific description and to illustrations and vernacular names (invented if necessary) general description, history, status, and often suggestions for preservation, are given. The bibliography (with its regional index) occupies 78 pages and there is also a thorough general index. The work reflects credit on all concerned: sponsors, contributors, author, and illustrator (Earl Lincoln Poole).

Diseases and Parasites: Bumblefoot in horned owl

Stoner, Dayton, and Lillian C. Stoner. An example of bumblefoot in the great horned owl, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 62(3), July 1945, pp. 405-408, 1 pl.

Description and illustration of a specimen taken in New York that had large tumors on its legs, which, upon examination, appeared to result from a malady like that of poultry, known as bumblefoot.

Diseases and Parasites: Rat bite fever

Richter, Curt P. Incidence of rat bites and rat bite fever in Baltimore, Journ. Amer. Medical Assoc. (535 N. Dearborn St., Chicago 10, Ill. 25 cents a copy), 128(5), June 2, 1945, pp. 324-326, 2 figs.

Discussion of experience at the Johns Hopkins Hospital, summarized as follows: "(1) Within an area of less than 2 square miles in the city of Baltimore a minimum of 93 persons were bitten by rats during the four year period from 1939 to 1943; (2) of these persons 65 received treatment at the Johns Hopkins Hospital, which is located within the 2 square mile area; (3) of this number 7, or 10.7 per cent, developed rat bite fever. None died; (4) the age of the patients ranged from 2 months to 65 years. Sixty per cent were babies under 1 year of age; (5) the patients were bitten while asleep. The hands and face, which are exposed during sleep, were most frequently bitten. In many instances the bites did little more than puncture the skin and draw blood before the patients were awakened; in some cases, however, part of the face was chewed away; (6) the evidence indicates that once having bitten a human being the rats are apt to bite other human beings; (7) it was concluded that the rat regards the sleeping infant or adult as a source of food. In most instances the first bite awakens the victim, frightens the rat away and thus interrupts the meal; (8) persons are much more apt to be bitten in heavily infested districts with poor housing and living conditions; (9) the high incidences of rat bites and the probably much higher incidence of actual physical contact between the rats and human beings may indicate that physical contact constitutes an overlooked channel for the transmission of diseases from rats to human beings." Editorial comment (p. 367) emphasizes the seriousness of rat menace and concludes, "Continuous active steps must be taken to control the pest of rats with every means available."

Diseases and Parasites: Rat-borne

Rumreich, A. S., and R. S. Wynn. A study of the rodent-ectoparasite population of Jacksonville, Fla., Public Health Reports (Supt. of Documents, Washington 25, D. C. 10 cents a copy), 60(31), Aug. 3, 1945, pp. 885-905, 2 figs., 7 tables.

Study of infestation rate as an index to the menace of rat-borne diseases. Data are presented on the incidence of 4 species of fleas, 3 of mites, and 2 of anoplura, by hosts (Rattus norvegicus and R. rattus) and months. They are also treated mathematically and correlated with weather conditions and environmental units. The relation of the findings to epidemiological studies is discussed.

Diseases and Parasites: Spotted fever

Jellison, Wm. L. The geographical distribution of Rocky Mountain spotted fever and Nuttall's cottontail in the western United States, Public Health Reports (Supt. of Documents, Washington 25, D. C. 10 cents a copy), 60(33), Aug. 17, 1945, pp. 958-961, 1 fig. (map).

In 12 western states, 99.58 percent of the spotted fever cases occur within the range of this rabbit which is known to harbor the disease, suggesting that it may be a natural reservoir of the virus. Bibliography of 6 titles.

Diseases and Parasites: Tularemia

Burroughs, A. R., R. Holdenried, D. S. Longanecker, and K. F. Meyer. A field study of latent tularemia in rodents with a list of all known naturally infected vertebrates, Journ. Infectious Diseases (University of Chicago Press, 5750 Ellis Ave., Chicago, Ill. $2.00 a copy), 76(2), March-April, 1945, pp. 115-119, tables.

Marin County, California. Authors' summary: "(1) Latent tularemia infection was found in Rattus norvegicus, Microtus californicus, and Peromyscus maniculatus. None of their ectoparasites were infected; (2) the possibility of an aerogenic transmission of tularemia among some rodents is suggested; (3) a list of vertebrates known to be naturally infected with tularemia is included." This is for the world and includes 48 groups of birds and mammals. Bibliography of 36 titles.

Diseases and Parasites: Visceral gout

Nestler, Ralph B. Visceral gout a symptom of A-vitaminosis, Journ. Wildlife Management (F. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, p. 255.

Discussion of two recent publications on this malady in birds and report on experiments that indicated it to be a symptom of A-vitaminosis.

Diseases and Parasites: Acanthocephala, Arythmorhynchus

Van Cleave, Harley J. The status of the acanthocephalan genus Arythmorhynchus, with particular reference to the validity of A. brevis, Trans. Amer. Microscopical Soc. (James E. Ackert, Kansas State College, Manhattan), 64(2), April 1945, pp. 133-137, 1 pl.

Validity of the generic assignment confirmed; Southwellina a synonym. Four species of fish-eating birds added to the host list. Bibliography of 10 titles.

Diseases and Parasites: Acanthocephala, Polymorphus

Van Cleave, Harley J. A new species of the acanthocephalan genus Polymorphus from the American coot, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 31(2), April 1945, pp. 128-130, 1 pl.

P. trochus; description, illustration, comparative notes; N. Y., Ohio. Bibliography of 5 titles.

Diseases and Parasites: Blood parasites

Fallis, A. Murray. Population trends and blood parasites of ruffed grouse in Ontario, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 203-206, Pl. 9, 2 figs., 1 table.

Discussion and graphing of fluctuations; a sharp decrease in the ruffed grouse population in 1942 and 1943 is indicated. The blood parasites are discussed and one of them (Plasmodium) is illustrated. The incidence of parasites of 5 genera in birds collected in the years specified is tabulated. They may have pathogenic significance. Bibliography of 6 titles.

Diseases and Parasites: Blood parasites

Wirth, Willis W. Blood parasites of Louisiana birds, Proc. Louisiana Academy of Sciences (Louisiana State University, Baton Rouge), Vol. 8, Dec. 1944, pp. 77-82, 2 tables.

Review of the Louisian literature (16 titles cited) and tabulation of the incidence of blood parasites reported. The meth ds used in the Louisiana study are noted and the results presented in table and text; of 53 birds representing 30 species, only two were found infected.

Diseases and Parasites: Deer lungworms

Dougherty, Ellsworth C. The nematode lungworms (Suborder Strongylina) of North American deer of the genus Odocoileus, Parasitology (Cambridge University Press, 200 Euston Road, London, N. W. 1, England. 37 shillings a copy), 36(3-4), March 1945, pp. 199-208, 11 figs.

Review of literature (27 titles cited,; history of knowledge of the deer lungworms; description, measurements, illustrations of Pneumostrongylus tenuis n. sp. from the white-tailed deer (N. Y.); critical discussion of other

species from the white-tailed and the mule deer; host-parasite list in which 7 species of lungworms are included; nomenclatorial alterations.

Diseases and Parasites: Diptera, Protocalliphora

Neff, Johnson A. Maggot infestation of nestling mourning doves, Condor (W. Lee Chambers, Robinson Road, Topanga, Calif. 50 cents a copy), 47(2), March-April 1945, pp. 73-76.

Maggots were found in the nests of five species of birds. This account deals with those of the mourning dove for which season and degree of infestation, habits and parasites of the fly larvae (Protocalliphora spp.), and reactions and mortality of the dove nestlings are discussed. Fatalities were indirect, being caused by the young doves tumbling out of the nests in their efforts to dislodge the maggots. No fewer than 85 maggots were found in a single nest.

Diseases and Parasites: Helminths of amphibians and reptiles

Rankin, John S., Jr. An ecological study of the helminth parasites of amphibians and reptiles of western Massachusetts and vicinity, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 31(2), April 1945, pp. 142-150, 1 table.

Host list (19 spp.) showing percentage of incidence of the parasites; annotated catalog of the helminths, naming their hosts, and recording particulars of their occurrence. The forms involved are: Trematoda 12; Nematoda 10; Cestoda 4; and Acanthocephala 1. Bibliography of 20 titles.

Diseases and Parasites: Nematoda, Abbreviata

Morgan, Banner Bill. The nematode genus Abbreviata (Travassos, 1920) Schulz, 1927, American Midland Naturalist (Notre Dame, Ind. $1.00 a copy), 34(2), Sept. 1945, pp. 485-490.

History and definition of the genus, parasite-host list for the world and notes on 3 species reported from reptiles and amphibians from the United States. Two-page bibliography.

Diseases and Parasites: Nematoda, Trichuris

Chandler, Asa C. Trichuris species from California rodents, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 31(4), Aug. 1945, pp. 284-286.

Notes on four species, three of which are described as new: Trichuris citelli from Citellus beecheyi; T. perognathi from Perognathus californicus; and T. neotomae from Neotoma fuscipes, all from California.

Diseases and Parasites: Siphonaptera, Oropsylla

Jellison, Wm. L. Siphonaptera: The genus Oropsylla in North America, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 31(2), April 1945, pp. 83-97, 3 pls.

An illustrated taxonomic review of 4 species with synonymy, descriptions, maps of ranges, and collection data including names of hosts. These fleas are parasites primarily of Citellus, Callospermophilus, Cynomys, and Marmota. Bibliography of 19 titles.

Diseases and Parasites: Trematoda, Neorenifer

Self, J. Teague. A new trematode, Neorenifer crotali, from the rattlesnake, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 31(3), June 1945, pp. 210-211, 1 fig.

From Crotalus atrox, Oklahoma; description, measurements, illustration, comparative notes.

Diseases and Parasites: Of antelope

Lucker, John T., and G. Dikmans. The distribution of Pseudostertagia bullosa and some new records of nematodes from pronghorn antelope (Antilocapra americana), Proc. of the Helminthological Society of Washington (Edna M. Buhrer, Plant Industry Station, Beltsville, Md.), 12(1), Jan. 1945, pp. 2-4.

This parasite occurs in both antelopes and domestic sheep; the former in the opinion of the authors being probably the primary host. Six other nematodes from antelopes also are reported.

Diseases and Parasites: Of bobwhite

Webster, J. Dan, and C. J. Addis. Helminths from the bob-white quail in Texas, Journ. Parasitology (Science Press, Lancaster, Pa. $1.50 a copy), 31(4), Aug. 1945, pp. 286-287.

Results of examination of 290 birds, as to 4 species of cestodes and 3 of nematodes.

Diseases and Parasites: Of captive game birds

Lester, Charles T. Treatment of scaly legs and sticktight fleas, Modern Game Breeding (28 W. State St., Doylestown, Pa. 25 cents a copy), 15(8), Aug. 1945, p. 4.

Treatment for these ills of captive gallinaceous birds.

Diseases and Parasites: Of fox, red

Portman, Roland W., and Paul D. Dalke. Infestation of a red fox by Amblyomma americanum, Journ. Economic Entomology (E. N. Cory, College Park, Md. 75 cents a copy), 38(3), June 1945, p. 397.

A Missouri specimen had more than 150 larvae, nymphs, and adults of this tick embedded in the skin of its abdomen.

Diseases and Parasites: Of gull, herring

Beaudette, F. R. Aspergillosis and parasitism in a gull, Bird-Banding (Charles B. Floyd, 210 South St., Boston, Mass. 75 cents a copy), 16(3), July 1945, pp. 99-101.

Lesions of a herring gull found dead in New Jersey (?) and associated parasites, which included nematode (1), cestodes (2), acanthocephalid (1), and Aspergillus fumigatus. Other hosts of these interlopers are mentioned. Bibliography of 9 titles.

Diseases and Parasites: Of hare, snowshoe

Erickson, Arnold B. Worms, cycles, and snowshoe hares, Conservation Volunteer (Minnesota Dept. of Conservation, St. Paul), 8(48), Sept.-Oct. 1945, pp. 40-44, 3 graphs.

The hare cycle and the relation of helminths to it are discussed. Five kinds of roundworms and one of tapeworm of the 19 species identified in about a thousand autopsies are considered significant in causing mortality. Their incidences and the lesions they cause are set forth. Parasites are only one of the factors causing fluctuations in the numbers of hares but their influence should not be overlooked.

Diseases and Parasites: Of hawk, duck

Preble, Norman A. Notes on the duck hawk in Ashland County, Ohio, Auk (Frederick C. Lincoln, Fish and Wildlife Service, Dept. of the Interior, Washington 25, D. C. $1.00 a copy), 62(3), July 1945, p. 456.

Notes on parasites of a collected specimen, including one species each of trematode, cestode, and nematode.

Diseases and Parasites: Of mouse, wood

Wilson, L. Wayne. Parasites collected from wood mouse in West Virginia, Journ. Mammalogy (Wm. H. Burt, University of Michigan, Ann Arbor. $1.00 a copy), 26(2), May 1945, p. 200.

From Peromyscus leucopus, including Coleoptera, Siphonaptera, Diptera, Arachnida, and Nematoda.

Diseases and Parasites: Of rat, cotton

Baylis, H. A. Helminths from the American cotton-rat (Sigmodon hispidus), Annals & Mag. of Nat. Hist. [Taylor & Francis Ltd., Red Lion Court, Fleet St., London, E. C. 4, England), Ser. 11, Vol. 12, No. 87, Aug. 1945, pp. 189-195, 2 figs.

Five species of nematodes and 3 of cestodes, of which Trichostrongylus sigmodontis is described as new; measurements and illustrations also are given, but no type locality. Bibliography of 13 titles.

Ecology: Birds of elm-maple forest

Twomey, Arthur C. The bird population of an elm-maple forest with special reference to aspection, territorialism, and coactions, Ecological Monographs (Duke University Press, Durham, N. C. $1.50 a copy), 15(2), April 1945, pp. 171-205, 12 figs., 9 tables.

Review of literature (40 titles cited), especially that bearing on the study area near Urbana, Illinois, which with the methods of investigation are described. Fluctuations of the bird population are discussed by seasons, and territories according to the strata occupied. Population density and food coactions also are discussed. The average area per pair was .74 acre in 1934 and .79 in 1935. The most abundant foods were selected. The avian population is an important influence in the environment.

Ecology: Cover

Palmer, E. Laurence. Cover, Cornell Rural School Leaflet (N. Y. State College of Agriculture, Cornell University, Ithaca), 38(4), 1945, 32 pp., illus.

This educational leaflet treats in text and cartoons the need of wildlife for cover and discusses: permanent and temporary cover, cover in relation to food supply, fencerows, runways, and water, silt, snow, soil as cover, the relation of cover and soil conservation, dens and homes, and concealing coloration. Suggestions are made as to what we can and should do about cover.

Ecology: Cruising radius, turtles

Marchand, Lewis J. The individual range of some Florida turtles, Copeia (M. Graham Netting, Carnegie Museum, Pittsburgh, Pa. $1.00 a copy), 1945, No. 2, June, pp. 75-77.

Normal range not exceeding 300 yards.

Economics: Coyote fur

Markley, Merle H. Seasonal fur primeness of the coyote in the western United States, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 227-231, 2 tables.

Review of literature on food habits and economic value of coyotes. Fur from the southwest is least, that from the northwest of most, value. Pelts bring from $6.00 to $18.50 each; their total annual value for the United States is about a million dollars. Primeness is defined and its seasonal duration discussed and tabulated. Bibliography of 8 titles.

Economics: Overflow lands

Bellrose, Frank C., Jr. Relative values of drained and undrained bottomland in Illinois, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 161-182, 3 figs., 9 tables.

Wildlife lands probably will be better managed when knowledge of how to manage them approaches in quality that available for arable lands. To increase public interest, their value needs to be emphasized and illustrative examples are cited. Wildlife resources of Illinois bottomlands are appraised and income from Rice Lake from duck hunting, trapping, and fishing is tabulated and discussed. The possibilities from management of the area in relation to each of these activities is set forth. The cost of drainage and flood control operations and their effects upon crop and wildlife yields are recounted and recommendations are made as to future policies. Flood hazards have been increased, not decreased, by leveeing and draining, and flood damage amounts to 1 to 3 million dollars annually in the State. Worth-while income from the management of overflow land for wildlife and for recreation based upon it is possible and the value of managed land compares favorably with that of drained areas used for agriculture. Bibliography of 15 titles.

Food Habits: Birds as prey of aquatic animals

Clegg, Wm. E. Fishes and other aquatic animals' preying on birds, Ibis (Taylor & Francis Ltd., Red Lion Court, Fleet St., London, E. C. 4, England. 12 shillings 6 pence a copy), 87, July 1945, pp. 422-433.

Compilation including a few American instances. Bibliography of 18 titles.

Food Habits: Birds vs pests

Roebuck, A. How wild birds benefit agriculture. Scottish Society for the Protection of Wild Birds (207 West George St., Glasgow, C. 2, Scotland), 4-page folder.

Specific instances of notable destruction of insect and weed pests by 9 species of birds. The same author published also 5 additional examples of useful bird work in Bird Notes and News, Vol. 17, 1936, pp. 8-10.

Food Habits: Deer damage to jack pine

LeBarron, Russel K., and Shaler E. Aldous. Jack pine vs. deer browse, Conservation Volunteer (Minnesota Dept. of Conservation, St. Paul), 8(48), Sept.-Oct. 1945, pp. 23-24, 1 pl.

"Jack pine is an important source of pulpwood, mine timbers, and box lumber bolts, and any interference with its growth is a serious matter." On one forest practically all seedlings had been severely browsed by deer. Damage is greatest where deer populations are excessive and herd reduction may be warranted for the good of the animals themselves as well as to assure future supplies of jack pine lumber.

Food Habits: Deer food made available by ice storm

Curtis, James D. Deer food produced by ice storm, Journ. Wildlife Management (F. F. English, 206 Forestry Bldg., State College, Pa. $1,00 a copy), 9(3), July 1945, pp. 257-258.

From trees thrown by an ice storm, the kinds and numbers and the utilization of which by deer and rabbits are indicated.

Food Habits: Duck damage to grain

Saugstad, Stanley. Duck damage, North Dakota Outdoors (State Fish and Game Dept., Bismarck. 5 cents a copy), 8(1), July 1945, pp. 8-10, 2 photos, 1 graph.

Damage to durum wheat, slight during the nesting season, became serious when flocks formed to the number of 10 to 14 thousand ducks (mallards and pintails). Shooting at evening when the birds were coming in resulted in rapid decrease in the number of duck visitors. The monetary loss on the single farm studied was estimated at $1,400.

Same material in Bimonthly Bulletin, North Dakota Agricultural Experiment Station (Fargo), 7(6), July-August 1945, pp. 17-20, 2 photos.

Food Habits: Rodents vs. fir seeds

Krauch, Hermann. Influence of rodents on natural regeneration of Douglasfir in the Southwest, Journ. Forestry (825 Mills Bldg., Washington 6, D. C. 50 cents a copy), 43(8), Aug. 1945, pp. 585-589, 5 tables.

Poor restocking of cutover stands is largely due to the destructive activities of rodents, particularly mice. The author reports and tabulates his findings and urges the control of rodents in years when there are good crops of the fir seeds. In uncut virgin stands, light cutting and complete disposal of slash may be all that is required to control the rodents.

Food Habits: Squirrel damage to pine

Schantz-Hansen, T. Red squirrel damage to mature red pine, Journ. Forestry (Mills Bldg., Washington 6, D. C. 50 cents a copy), 43(8), Aug. 1945, pp. 604-605, 1 table.

Minnesota. Severing the tips of branches which fall to the ground and apparently are not eaten. Seriousness of the damage is not estimated nor is control suggested. The same type of injury noted on a lesser scale for jack pine.

Food Habits: Utilization of grapes

Massey, A. B. Native grapes, Virginia Polytechnic Institute (Blacksburg), Bul. 38(9), July 1945, 20 pp., 5 figs.

Interesting and useful account of the wild grapes of Virginia with full reference to their value as cover and food for wildlife. The characteristics, utility, and propagation of the grapes are discussed, and 14 species and varieties are commented upon.

Food Habits: Of amphibians and reptiles

Schonberger, Clinton F. Food of some amphibians and reptiles of Oregon and Washington, Copeia (M. Graham Netting, Carnegie Museum, Pittsburgh, Pa. $1.00 a copy), 1945, No. 2, June, pp. 120-121.

Results of stomach analyses for one species of frog (37 specimens), 1 toad (32), 1 lizard, and 3 snakes.

Food Habits: Of bobwhite

Allen, Ralph H., Jr., and Allen M. Pearson. Summer food of bobwhite quail, Alabama Conservation (5-7 North Bainbridge St., Montgomery 4, Ala.), 17(1), July 1945, pp. 5, 12, 2 photos, 1 table.

Report on contents of 38 crops collected in the Limestone Valleys Soil Province. Vegetable foods comprised 68 percent of the total; leading item seeds of Johnson grass. Legumes contributed 24 percent, less than half the winter proportion. Grasshoppers predominated among animal foods.

Food Habits: Of bobwhite

Laessle, Albert M. A study of quail food habits in peninsular Florida, Proc. Fla. Acad. Sci. (Raymond F. Bellamy, Florida State College for Women, Tallahassee), 7(2-3), June-Sept. 1944, pp. 155-171, 1 pl., 9 tables.

Ecology of the study area; methods of the investigation; report on food by percentages of dry weight for 200 birds. The findings are tabulated, discussed, and summarized, and all identifications are listed. Percentages were for: vegetable food 86, animal 14. Seasonal variations were about as pronounced as in northern localities, animal matter contributing 23.2 percent in summer and only 1 percent in winter. Plants of 4 genera (Chamaecrista, Galactia, Quercus, and Arachis) supplied more than half of the vegetable food. The largest items of animal subsistence were grasshoppers and sawfly larvae. Weights of 24 specimens are discussed. Bibliography of 9 titles.

Food Habits: Of deer, Columbian black-tailed

Cowan, Ian McTaggart. The ecological relationships of the food of the Columbian black-tailed deer, Odocoileus hemionus columbianus (Richardson), in the coast forest region of southern Vancouver Island, British Columbia, Ecological Monographs (Duke University Press, Durham, N. C. $1.50 a copy), 15(2), April 1945, pp. 109-139, 17 figs., 22 tables.

The method of the investigation, the study area, and its plant communities are described and the utilization by deer of the principal plants discussed and tabulated. The feeding habits of the deer are reported from field observation and stomach analyses. Water and mineral consumption also are considered. The effects of deer browsing upon the plants are narrated and browse preferences are set forth in text and table. Where no livestock are present, the most favorable plant communities can support a deer population of from 20 to 30 per square mile. Forty deer, per section, however, produce an overgrazed condition. About two-thirds of the food is browse, 15 percent arboreal lichens, 5 percent mushrooms, and the remainder grasses, sedges, and other herbs. The paper is well summarized and offers management suggestions. Bibliography of 9 titles. A very thorough and estimable study.

Food Habits: Of lizard, fence

Cagle, Fred R. Notes on Sceloporus undulatus undulatus, Copeia (M. Graham Netting, Carnegie Museum, Pittsburgh, Pa. $1.00 a copy), 1945, No. 2, June, p. 122.

Notes from examination of 20 stomachs.

Food Habits: Of salamanders

Schonberger, Clinton F. Food of salamanders in the northwestern United States, Copeia (M. Graham Netting, Carnegie Museum, Pittsburgh, Pa. $1.00 a copy), 1944, No. 4, Dec., p. 257.

Notes on stomach contents of a few specimens of 4 species collected in California and Oregon.

Life Histories: Eider, American

Gross, Alfred O. The present status of the American eider on the Maine coast, Wilson Bulletin (Josselyn Van Tyne, University of Michigan, Ann Arbor. 50 cents a copy), 56(1), March 1944, pp. 15-26, 3 figs.

In 1907, the population had been so reduced that apparently only a single pair remained on one island off the Maine coast. Better protection favored a gradual increase until now the number and the range are greater than recorded at any time in the past. Counts by islands are given for recent years.

Life Histories: Fisher

Abbott, Jacob B. Fur-bearing dynamite--the fisher, Pennsylvania Game News (Pennsylvania Game Commission, Harrisburg. 10 cents a copy), 16(2), May 1945, pp. 4-5, 22, 3 figs., 1 table.

Popular article on the fisher; range, abundance, food habits; references to good illustrations; bibliography of 5 titles.

Life Histories: Gull, Laughing

Gross, Alfred O. The laughing gull on the coast of Maine, Bird-Banding (Charles B. Floyd, 210 South St., Boston, Mass. 75 cents a copy), 16(2), April 1945, pp. 53-58.

Survey of the population and of agents affecting it. Laughing gulls displaced terns and are now themselves being crowded out by herring and black-backed gulls. Bibliography of 11 titles.

Life Histories: Lizard, Sagebrush

Woodbury, Marian, and Angus M. Woodbury. Life-history studies of the sagebrush lizard Sceloporus g. graciosus with special reference to cycles in reproduction, Herpetologica (Chapman Grant, 2970 Sixth Ave., San Diego 3, Calif.), 2(7-8), April 1945, pp. 175-196, 3 figs.

Utah. Field and laboratory methods are outlined; the animal's appearance range, and habitat are described, and its life history discussed in some detail. Bibliography of 28 titles.

Life Histories: Kite, Mississippi

Jackson, A. S. Mississippi kite, Texas Game and Fish (Walton Bldg., Austin, Tex. 10 cents a copy), 3(9), Aug. 1945, pp. 6-7, 26, 4 photos.

Appearance, nesting, eggs, incubation, young, food (chiefly grasshoppers and cicadas), enemies, flight, need of protection.

Life Histories: Mouse, White-footed

Thomsen, Hans Peter. The winter habits of the northern white-footed mouse, Journ. Mammalogy (Wm. H. Burt, University of Michigan, Ann Arbor. $1.00 a copy), 26(2), May 1945, pp. 138-142.

Results from live-trapping in Wisconsin discussed under the heads of movements, dominance, and territoriality. Author's summary: "(1) In the area studied, white-footed mice lived in groups of 6, 5, 4, 4 and 3, during the winter months of 1943-44. Females predominated in all but one group; (2) individuals of these groups did not range farther than 30 feet from their places of shelter, and were never caught near the shelter of another group; (3) caged mice of one group did not tolerate mice from another group; (4) the cap-

tive mice huddled together in a definite pattern. This pattern is probably based on social dominance; (5) ingress of two males occurred 42 days after the removal of a mouse unit." Bibliography of 14 titles.

Life Histories: Muskrat

Dozier, Herbert L. Sex ratio and weights of muskrats from the Montezuma National Wildlife Refuge, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 232-237, Pls. 10-11, 2 tables.

Description of the area and report on the sex ratio (122:100) in 3,919 individuals. Weights, amount of fat, and quality of pelt are compared with those for animals from other areas. Local opinion as to the value of food plants is summarized and comparative notes from other places are offered. Bibliography of 6 titles.

Life Histories: Robin

Farner, Donald S. The return of robins to their birthplaces, Bird-Banding (Charles B. Floyd, 210 South St., Boston, Mass. 75 cents a copy), 16(3), July 1945, pp. 81-99, 1 fig., 4 tables.

Review of literature on return of birds to the natal locality. Summary of results from banding records of the eastern robin in which the habit of returning to the birthplace seems almost invariable. The author discusses this and cognate findings in relation to systematic ornithology. Two-page bibliography.

Life Histories: Shrew, Short-tailed

Davis, William B., and Leonard Joeris. Notes on the life-history of the little short-tailed shrew, Journ. Mammalogy (Wm. H. Burt, University of Michigan, Ann Arbor. $1.00 a copy), 26(2), May 1945, pp. 136-138.

Notes on habitat, burrows, nests, sociability, activity, food, and reproduction, partly from observation of captive animals. Texas.

Life Histories: Shrew, short-tailed, longevity of

Pearson, Oliver P. Longevity of the short-tailed shrew, American Midland Naturalist (Notre Dame, Ind. $1.00 a copy), 34(2), Sept. 1945, pp. 531-546, 4 figs., 2 tables.

Degree of tooth-wear, a reliable indicator of age, is discussed and illustrated. Some short-tailed shrews survive more than one breeding season and there probably is no essential difference in the regulation of their life span from that which affects other prolific small mammals, including deer mice for which comparable data are given.

Life Histories: Skunks

Davis, William B. Texas skunks, Texas Game and Fish (Walton Bldg., Austin. 10 cents a copy), 3(8), July 1945, pp. 8-10, 25-26, 3 photos, 2 maps.

Six species occur; for each a description (including weight) and notes on habits (especially food), life history, and economic value, are given.

Life Histories: Snake, Bull

Jackson, Earl. About bull snakes, Animal Kingdom (New York Zoological Society, 630 Fifth Ave., New York 20, N. Y. 35 cents a copy), 48(3), June 1945, pp. 75-79, 2 photos.

Popular article, embodying life history notes, especially on food habits, and an estimate of $3.75 as the annual value of an adult bull snake in destroying rodents.

Life Histories: Turtles

Cagle, Fred R. Home range, homing behavior, and migration in turtles, Misc. Publs., Museum of Zool., University of Michigan (Ann Arbor), No. 61, Nov. 1944, 34 pp., 2 pls., 4 figs., 5 tables.

Review of literature on cognate subjects for the group of reptiles (24 titles cited) and outline of the scope, methods, and locale of the investigation. The author then details his findings as to local activity, home range (exists but is rather indefinite and does not indicate territoriality), homing behavior and seasonal migration (both moderately developed), and forced migration (as by drying up of habitat, reluctantly done and reversed when conditions permit).

Life Histories: Vision in owls

Dice, Lee R. Minimum intensities of illumination under which owls can find dead prey by sight, American Naturalist (Science Press, Lancaster, Pa. $1.00 a copy), 79(784), Sept-Oct. 1945, pp. 385-416.

Experimental studies with 4 species. "Barred, long-eared, and barn owls are able to see objects under an illumination of between one-hundredth and one-tenth of the light intensity that man requires." The burrowing owl, a more diurnal species "seems to have somewhat the same ability to see in weak light as does man."

Life Histories: Woodchuck

Cook, David B. Your neighbor the woodchuck, Audubon Magazine (1006 Fifth Ave., New York 28, N. Y. 35 cents a copy), 47(4), July-Aug. 1945, pp. 201-206, 6 photos.

Life history of the woodchuck, its industry as an excavator, and the value of its burrows to other creatures. Esthetic and economic values of the animal are considered; control when necessary should be by shooting. Gassing may kill other animals that take shelter in the dens. There are plenty of places where the woodchuck does little harm and should be left in peace.

Management: Attracting birds

Mason, C. Russell. Build bird population with food plants, Arnoldia (Arnold Arboretum, Jamaica Plain, Mass.), 5(2-3), April 1945, pp. 5-20, 4 pls., 1 fig.

On the basis of experience at the Moose Hill Bird Sanctuary, Sharon, Massachusetts, the ten most highly recommended fruit-bearing plants attractive to birds are: Tatarian honeysuckle, buckthorn, red mulberry, gray dogwood, red-osier dogwood, arrowwood viburnum, common winterberry, mountain ash, flowering crab, and Japanese barberry. A considerable number of trees, shrubs, and vines are discussed with respect to their value to birds and the seasons at which their fruits are available. Plants valuable as cover, and for seeds alone, are suggested, and a plan offered for backyard planting. A more than usually valuable publication in this field.

Management: Deer, White-tailed

Cook, Faxon W. White-tailed deer in the Great Plains region, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 237-242, 1 table.

Reduced to a low population level in this region as elsewhere in the latter part of the 19th century, the white-tailed deer have notably responded to the protection and favorable environment afforded by the National wildlife refuges. Details are given for several areas in North and South Dakota.

Management: Deer, White-tailed

Hahn, Henry C. The white-tailed deer in the Edwards Plateau Region of Texas, Texas Game, Fish, and Oyster Commission (Austin), 52 pp, 10 pls., 14 tables, May 1945.

Deer, though of increasing importance and bringing an income of thousands of dollars annually in the Edwards Plateau, are in competition with concentrated grazing by domestic stock. The deer have decreased in weight, the sex ratio is unfavorable, and malnutrition, even starvation, occurs. The region is described and man's influence upon the country and its wildlife recounted. The methods of estimating deer numbers are outlined and the results tabulated; densities ranged from 21.4 to 3.1 acres per deer. In Kerr County, "Overstocking with sheep and goats together with drouth x x x resulted in a 50 percent reduction of the x x x deer population in one year." In 1942 and 1943 the sex ratio was 1:4.9 prior to, and 1:11.5 after, the hunting season. Details are given of an extensive investigation of weights; "On one ranch the average x x x decreased 35.04 pounds in eight years." Stocking (of all ruminants combined) should be reduced from the present 70, to 50, animals per section. Limiting factors are

varied; malnutrition and parasites were most important. Food habits are exhaustively discussed; seasonal observations on plants eaten and stomach analyses are tabulated. Deer economics are worthy of consideration. "As a general conclusion," the author says, "it may be stated that a sound conservation program for the white-tailed deer could well be integrated with a sound program of land use. The grazing practices which tend to evict this animal are the same practices which tend to evict man himself from the soil. Maintenance of more favorable vegetative conditions through proper grazing should insure the continuance of deer in shootable numbers." Bibliography of 14 titles.

Management: Farm wildlife

English, P. F. Havens for wildlife, Pennsylvania Farmer (Capper-Harman-Slocum, Inc., 15 North Front St., Harrisburg, Pa.), 133(3), Aug. 11, 1945, pp. 54, 70, 2 photos.

Some of the pros and cons of clean versus "natural" farming. Brushy fencerows have esthetic appeal, attract useful songbirds, provide cover for upland game birds and cottontails, and check wind and water erosion. Fencerows, however, should be controlled as to both width and height. Farm wood lots are more valuable when ungrazed.

Management: Farm wildlife

Greenwell, Guy A. Grazing practices and wildlife management, Missouri Conservationist (Missouri Conservation Commission, Jefferson City), 6(8), Aug., 1945, pp. 2-3, 3 photos.

Instances of increase in wildlife concurrent with land improvement programs. Overgrazing leads not only to decreases in wildlife but also to soil impoverishment and erosion. Woodland grazing is unprofitable in meat yield and tends to destroy forest reproduction. It is not only bad for wildlife but is poor livestock management. It is better farming to keep rough areas well vegetated and to maintain good pasturage elsewhere, by the aid of fertilizer if necessary. Again well kept pastures are useful to wildlife.

Management: Forest wildlife

Swift, Lloyd W. Our national forests as a home for wildlife, Audubon Magazine (National Audubon Society, 1006 Fifth Ave., New York 28, N. Y. 35 cents a copy), 47(5), Sept.-Oct. 1945, pp. 288-295, 8 photos, 1 map.

Value of the forests in early wildlife conservation, effects of protection including overpopulations, management of forests in relation to wildlife, cooperation with state game departments, special protection of the California condor.

Management: Harvest, bobwhite

Bennitt, Rudolf. Some social factors influencing quail hunting in Missouri, 1938-1944, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 195-202, 6 tables.

A study of hunting reports. Author's summary: "(1) Metropolitan quail hunters in Missouri, as a group, when compared with hunters living elsewhere in the state, either in general or in only the counties hunted by the former, averaged fewer trips per season, fewer hours afield per season, fewer coveys flushed per day, fewer birds bagged per gun-hour, and a higher proportion of birds shot down but lost during the 7-year period (1938-44); (2) they travelled farther afield and did a higher proportion of their hunting on the 12 'special days' of the season; (3) their hunting territory was farther reduced during the war years and their hunting was more sharply limited to the special days; some reasons for these differences in activity and hunting success are discussed; (5) the amount of quail hunting in Missouri has been halved between 1939 and 1944, with relatively heavier hunting pressure on the 12 special days and relatively lighter pressure on the other 40 days."

Management: Harvest, waterfowl

Bellrose, Frank C., Jr. Ratio of reported to unreported duck bands in Illinois, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, p. 254.

On the basis of the probable proportion of returns by hunters, the writer estimates that Illinois hunters bagged (excluding all unretrieved birds) the following percentages of the duck population: 8.4 in 1940, 7.0 in 1941, and 9.4 in 1942. Presumably allowing for cripples, he assumes that hunting annually removes about 11 percent of the continental duck population. He says he has found no published statement on the proportion of banded birds which are shot and reported, overlooking the following (besides briefer mention) by Frederick C. Lincoln:

Calculating waterfowl abundance on the basis of banding returns. U. S. Dept. of Agriculture Circ. 118, 4 pp., May 1930.

12 percent return expected the first season.

Raise ducks! Field & Stream, 40(6), Oct. 1935, pp. 34-35, 63-65.

One and one-half percent return from game farm birds contrasted with a normal expectancy of from 20 to 25 percent.

Management: Herd regulation

Swift, Lloyd W. A partial history of the elk herds of Colorado, Journ. Mammalogy (Wm. H. Burt, University of Michigan, Ann Arbor. $1.00 a copy), 26(2), May 1945, pp. 114-119.

"Even as late as 1910, there was good reason to suspect the eventual extermination of the Rocky Mountain elk." However, improved game laws and refuges turned the tide and restoration was accomplished. Author's summary: "The history of the Colorado elk herds illustrates the ability of this species of big game to become reestablished where range is available and protective measures are applied. It shows that elk populations can be increased readily under a restoration program and therefore allays the concern expressed over the possibility of overshooting under present limitations of seasons, bag limits, and

other restrictive measures. The further application of management principles can be expected to keep the herds in adjustment with the environment. At the present time, it is the opinion of the Colorado Game and Fish Department that there are now only a few elk problem areas in the State. On all problem areas the number of antlerless licenses have been increased considerably and marked progress has been made in adjusting numbers to the carrying capacity of the range."

Management: Marsh

Edminster, Frank C. Ditching for muskrats, Pennsylvania Game News (Pennsylvania Game Commission, Harrisburg. 10 cents a copy), 16(1), April 1945, p. 13, 2 photos.

Dynamiting ditches to open overgrown marsh.

Management: Muskrat

Lay, Daniel W. Furry dividends, Texas Game and Fish (Walton Bldg., Austin), 3(10), Sept. 1945, pp. 8-9, 20, 8 photos.

Distribution, habits, food, and management of the muskrat, most valuable fur animal of the State. Under management, the take on a marsh in Chambers County was increased from 5,000 in 1940 to 43,000 in 1944. The value of the total catch in Texas approaches a million dollars annually.

Management: Overpopulations, deer

Cook, David B. Deer trouble, Audubon Magazine (1006 Fifth Ave., New York 28, N. Y. 35 cents a copy), 47(2), March-April 1945, pp. 74-79, 6 photos.

Popular article dealing with causes leading to the increase of deer in old settled parts of the country, which when pronounced leads to overutilization of food supplies and eventually to starvation. Deer can double their numbers annually and their populations must be controlled, preferably the author thinks by sufficient hunting.

Management: Quail, California

Glading, Ben, R. W. Enderlin, and Henry A. Hjersman. The Kettleman Hills quail project, California Fish and Game (Division of Fish and Game, Ferry Bldg., San Francisco 11, Calif.), 31(3), July 1945, pp. 139-156, Figs. 37-47, 3 tables.

Experiments in a barren area, apparently unsuitable for quail. The results of censuses of quails, sparrows, raptors, rabbits, rodents, and predators are summarized and the results of feeding and watering experiments recounted. Authors' summary: "Experiments were set up at Kettleman Hills to determine whether or not artificial feeding of quail was practical. A slight increase in quail, and some negligible increase in rabbits, seed-eating birds, and predators was noted. An increase in rodents showed in our counts. It was

not felt that the slight increase in quail justified the cost of artificial feeding. Experiments were set up to determine the best means of stocking an area formerly devoid of water and quail to which water had been supplied. It was found that if quail are naturally present within two miles of such new installations, the best procedure is to 'let nature take its course' and allow birds to move in from surrounding areas rather than to try to stock this area with birds planted from a bulk or gradual release. The best means of developing quail on the Hills was found to be to rectify the two principal deficiencies found in this area; that is, lack of water and lack of roosts. Water was supplied principally by tapping oil company lines, and roosts were supplied mainly by the addition of evergreen tamarisk. The ultimate aim on the area is to make it into a 'natural game farm.' To this end quail management technics developed here and throughout the State generally will be applied, leading, it is hoped, to an increased quail population on Kettleman Hills from which an annual trappable surplus will be removed."

Management: Range appraisal

Dasmann, William. A method for estimating carrying capacity of range lands, Journ. Forestry (825 Mills Bldg., 17th St. & Pa. Ave., N.W., Washington 6, D. C. 50 cents a copy), 43(6), June 1945, pp. 400-402, 3 tables.

Discussion of forage density, palatability ratings, proper use factor, and key species. Comparison of results obtained by the reconnaissance, square-foot density, and a suggested new, methods. The last named is based on estimated weight of the forage. Author's conclusion: "Both the reconnaissance and the square-foot-density methods of estimating carrying capacity of range units make use of forage density measurements and palatability ratings. Forage density measurements are inadequate because they do not adequately measure the quantity of forage present. Palatability ratings are not reliable because livestock use and preference vary with forage types. The use of actual or estimated forage weight measurements, with allowances for metabolic reserves and livestock preferences, is basically sound, and should permit the more reliable determination of carrying capacity."

Management: Stocking, bobwhite

Nestler, Ralph B., and Allan T. Studholme. The future of pen-reared quail in post-war restocking programs, Pennsylvania Game News (Pennsylvania Game Commission, Harrisburg. 10 cents a copy), 16(3), June 1945, pp. 3, 26-27, 30, 7 photos.

Assistance to remnants of native stock through protection and the improvement of habitat is the slowest but undoubtedly the surest means of restoration, provided the seed stock has not been too far depleted. The transplanting of wild birds has in its favor the hardiness and wildness of the stock. The history of the use of pen-reared quail is reviewed, the status of their propagation is summarized, and the growing sentiment against wholesale liberation of pen-raised bobwhites is discussed. Difficulties are poor quality of stock, unsuitability of the environment into which it is released, and improper methods of liberation. All doubtless can be improved, especially as a result of research. Bibliography of 12 titles.

Management: Stocking chukar partridge

Nagel, Werner O. Adaptability of the chukar partridge to Missouri conditions, Journ. Wildlife Management (F. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 207-216, 1 fig., 3 tables.

Experimental plantings of from 50 to 100 birds in each of 14 locations were followed by studies that are reported upon under the heads: mortality, range preferences, cover requirements, food habits, reproduction, wandering, relation to native species, game qualities, and disease. From author's summary: "Loss of chukars after release through predation and disease was not enough alone to constitute a deciding factor in establishment. The available food seemed adequate to keep chukars in good condition but items essential to the establishment of a high population may have been missing. Cover seemed adequate for protection and travel but nesting cover may have been deficient as indicated by the low density of nests even on areas apparently most suitable. Production of 14.6 young per nesting pair, as on Area 4, would insure population increase, but was rendered inadequate by associated factors, primarily the habit of wandering. Most of the birds reared or released left the areas, scattered widely, and continued to move without settling; whatever the cause(s), this dispersal was primarily responsible for failure of the birds to become established x x x Chukars proved susceptible to common diseases of poultry and game birds. It early became apparent that chukars, if established, would be in localities also favorable to bobwhite quail. Similarity in food habits of the two suggested that chukars, in abundance, would compete strongly with quail for food. This was the greatest factor influencing the decision to cease releasing chukars when the stock on hand was exhausted. In view of the relatively low mortality and good productivity, if chukars had remained on the areas in numbers approaching those released, they probably would have become established in some places. Not enough of the birds remained on the areas, probably because of some environmental deficiency in the kind, quantity, quality, or arrangement of food and cover, or to some peculiarity of the birds themselves. Conditions were unsuitable for establishment of pen-reared Indian Hill Partridges in Missouri, by releases averaging one bird per seven acres."

Management: Turkey

Temple, Joe L. The wild turkey in Oklahoma, Oklahoma Game and Fish News (Oklahoma Game and Fish Commission, State Capitol, Oklahoma City), 1(6), June 1945, pp. 4-5, 18, 1 photo.

Originally so abundant that the supply was considered inexhaustible, the wild turkey was so persecuted that 50 years ago its numbers were alarmingly low and now are pitifully few. "Loss of habitat and excessive hunting accounts for the depreciation of population in the central region of the State and in the mountainous eastern section excessive hunting, timber operations and, to a lesser extent, agricultural activities are the responsible agents." Restoration may be accomplished by establishment of refuges, direct restocking, and pen-mating of stocked hens with wild cocks. However, the indispensable factor is cooperation of the public so that management and protective measures may attain their full effect.

Management: Wildlife on Soil Conservation Districts

Ruble, Ralph W. Physical land conditions in Kent Soil Conservation District, Maryland, Soil Conservation Service Physical Land Survey No. 37 (Supt. of Documents, Washington 25, D. C. 15 cents a copy), 28 pp., 17 figs., 15 tables, 1945.

A section on woodlands and wildlife (pp. 12-13) indicates lands that can well be devoted to wildlife production and makes suggestions as to their management.

Natural History: Aquatic plants of Minnesota

Moyle, John B. Some chemical factors influencing the distribution of aquatic plants in Minnesota, American Midland Naturalist (Notre Dame, Ind. $1.00 a copy), 34(2), Sept. 1945, pp. 402-420, 2 tables, 1945.

Review of literature (39 titles cited), statement of methods of the investigation, notes on chemical qualities of Minnesota surface waters, and account (with tabulations) of the tolerances of Minnesota plants for soft, hard, and alkaline waters. "Experimental growth of Ruppia suggests that hard and soft carbonate waters are not toxic to this species, but that in such waters the plants are unable to gain sufficient nutriment for successful growth. Although water chemistry appears to be the most important single factor influencing the general distribution of aquatic plants in Minnesota, field observations show that the type of bottom soil and the physical nature of the body of water greatly influence the local distribution of a species within its range of chemical tolerance. Experimental growth studies with Lemna minor suggest that even free-floating vegetation is dependent upon the fertility of the bottom soil for successful growth."

Natural History: Aquatic plants of Minnesota

Moyle, John B., and Neil Hotchkiss. The aquatic and marsh vegetation of Minnesota and its value to waterfowl. Minnesota Dept. of Conservation (St. Paul), Technical Bul. 3, [6]+122 pp., 60 figs., 1945.

Summary of investigations made by the Biological Survey (1917-1940) and Minnesota agencies (1933-1940). Early headings are: geography and climate of Minnesota, Minnesota lakes--their soils and waters (see preceding abstract), and drainage in relation to waterfowl. The marsh and aquatic vegetation is discussed as to food and cover values. The factors of chemical characteristics of the water, soil structure and fertility, water levels, physical nature of bodies of water, and carp in relation to the plants also are treated. Suggestions are given as to surveying areas to be planted, propagation of valuable food and cover plants, and control of undesirable vegetation. There is an annotated check list of the flora dealt with and a key to the commoner aquatic and marsh plants. There are 60 clear and well reproduced line cuts and a 6-1/2 page bibliography.

Natural History: Birds of British Columbia

Munro, J. A. The birds of the Cariboo Parklands, British Columbia, Canadian Journal of Research (National Research Council, Ottawa), 23(3), Sect. D, pp. 17-103, 5 pls., 1 map. 1945.

Description of the area and its vertebrate habitats; annotated list of species; ecological notes on localities mentioned in the text; section on birds as factors in the control of insects; references to literature.

Natural History: Birds of Nebraska

Haecker, F. W., R. Allyn Moser, and Jane B. Swenk. Check-list of the birds of Nebraska, Nebraska Bird Review (F. W. Haecker, 506 South 52nd St., Omaha 6, Nebr. 50 cents a copy; check-list available in reprint form at the same price), 13(1), Jan.-June 1945, pp. 1-40.

Briefly annotated list of 473 species and subspecies.

Natural History: Birds of West Virginia

Brooks, Maurice G. A check-list of West Virginia birds, W. Va. Agr. Expt. Sta. (Morgantown), Bul. 316, 2+56 pp., 1 pl., cover design and map, Dec. 1944 (received June 1945).

An introductory chapter deals with the topography, climate, forests, life zones of West Virginia, and with ornithological work in the State. The bulk of the paper is an annotated catalog of 311 species and subspecies of birds; a hypothetical list comments on the status of 9 additional forms.

Natural History: Distribution of birds

Odum, Eugene P. The concept of the biome as applied to the distribution of North American birds, Wilson Bul. (Josselyn Van Tyne, University of Michigan, Ann Arbor. 50 cents a copy), 57(3), Sept. 1945, pp. 191-201.

Comparison of the life zone and biome theories and of their advantages and disadvantages in connection with study of the distribution of birds. Bibliography of 29 titles.

Natural History: Hawks of Minnesota

Breckenridge, W. J. The hawks--now protected in Minnesota, Conservation Volunteer (Minnesota Dept. of Conservation, St. Paul), 8(48), Sept.-Oct. 1945, pp. 6-13, 2 figs.

By recent legislative action, 17 of the 20 species of eagles, hawks, and vultures known to occur in the State are protected by law. The author describes the characteristics of the birds as successful predators and gives a table of relative abundance of the species: marsh hawk and redtail most common. "The unprotected species constitute only about one-eighth of all the hawks of the State." Suggestions are made as to recognition of groups of hawks and fuller notes are offered on the appearance, habits, and food of some of the more prominent species.

Natural History: Mammals of Kansas

Hibbard, Claude W. A checklist of Kansas mammals, Trans. Kansas Acad. Sci. (University of Kansas, Lawrence), 47, 1944-45, pp. 61-88.

Annotated list. Bibliography of 29 titles.

Natural History: Mammals of Minnesota

Swanson, Gustav, Thaddeus Surber, and Thomas S. Roberts. The mammals of Minnesota, Minnesota Dept. of Conservation (St. Paul), Tech. Bul. 2, 108 pp., illus., 1945.

Chapters signed by the various authors are for: Roberts, one; Surber, four; and Swanson, five. Knowledge of the fossil, extirpated, and existing faunas is summarized; the big game, rodent, and insectivorous species receive special treatment; conservation, economic importance, and collecting are discussed; and a systematic catalog is presented.

Natural History: Mammals of N. W. T.

Porsild, A. E. Mammals of the Mackenzie Delta, Canadian Field-Naturalist (I. L. Conners, Central Experimental Farm, Ottawa, Canada. 40 cents a copy), 59(1), Jan.-Feb. 1945, pp. 4-22.

Description of the region and its mammal habitats; estimate of fur productivity (more than $500,000 in annual value; average of $350 per trapper); list of forms of mammals with many notes on food and other habits, utilization by man, etc. Bibliography of 17 titles.

Natural History: Reptiles and amphibians

Morris, Percy A. They hop and crawl. Jaques Cattell Press (Lancaster, Pa. $3.50 a copy), 253 pp., many photographs, 2nd edit., 1945.

A popular work on amphibians and reptiles that discusses fallacies as to snakes and summarizes information relating to most of the nearctic species of both phyla. A useful component of a natural history library.

Predation: Pike vs. waterfowl

Solman, Victor E. F. The ecological relations of pike, Esox lucius L., and waterfowl, Ecology (Prince and Lemon Sts., Lancaster, Pa. $1.50 a copy), 26(2), April 1945, pp. 157-170, 2 pls., 11 tables.

Studies in the lower Saskatchewan River delta; map and description of the area; extent of waterfowl breeding; life-history and especially food habits of the pike; discussion of pike-waterfowl relationships and the possibilities of control (outlook poor). Author's summary: "The increase of agriculture on the Prairies during the last few decades, together with a decrease of precipitation, has reduced the availability of the Prairies as a breeding ground for waterfowl. The northern breeding areas have therefore become more important in

maintaining the waterfowl population of North America. Predation on young waterfowl by pike was reported from 44 per cent of areas under observation by 207 observers. Its intensity varied, for instance at Littlefish Lake 0.42 per cent of pike taken contained waterfowl, at Redrock Lake 7.5 per cent, and at Baptizing Creek 3.0 per cent. Forty-five per cent of the waterfowl eaten were less than one week old, and diving ducklings were taken three times as often as surface species. Pike between 19 and 30 inches long were responsible for 71.5 per cent of all predation on waterfowl, although this size range was only 23.3 per cent of all pike taken which were large enough to prey on waterfowl. Female pike contained on the average three times the weight of food found in males, although they were on the average but 1.14 inches longer; females comprised 47.8 per cent of the population, but were responsible for 56 per cent of the predation. This greater predation and greater food content are probably related to their greater observed growth rate. Predation by pike may destroy one young waterfowl per 0.6 acre (1.7 per acre) of water per season in areas like the Saskatchewan River delta. Since the combined areas of this and the Athabaska River delta comprise over 900,000 acres as normal summer levels, the destruction of young waterfowl by pike may amount to 1,500,000 per year, or 9.7 per cent of the average annual production of these areas." Bibliography of 26 titles.

Predation: Red fox vs. muskrat

Errington, Paul L., and Thomas G. Scott. Reduction in productivity of muskrat pelts on an Iowa marsh through depredations of red foxes, Journ. Agricultural Research (Supt. of Documents, Washington 25, D. C. 10 cents a copy), 71(4), Aug. 15, 1945, pp. 137-148.

The principal predators upon muskrats in Iowa are the mink, great horned owl, and red fox. Review of literature on foxes as enemies of muskrats and description of the study area and methods of investigation. Account of Wall Lake muskrats during a drought and of fox predation upon them, which under the circumstances was unusually severe and caused a loss of about 25 percent in trappers' returns, amounting to about a hundred dollars. Bibliography of 27 titles.

Propagation: Treatment of gapes

Herman, Carlton M. Gapeworm in California quail and chukar partridge, California Fish and Game (Ferry Bldg., San Francisco 11, Calif.), 31(2), pp. 68-72, 3 figs.

Occurrence of gapeworms in upland game birds both in the wild and in captivity. Notes on the worm, the symptoms it causes, transmission, sanitation, and treatment. This is the same as is recommended for poultry.

Research: Basic to management

Mohler, Levi. What does a game biologist do?, Outdoor Nebraska (Game, Forestation, and Parks Commission, Lincoln, Nebr.), 23(2), Summer 1945, pp. 4-6, 4 photos.

Statement of some of the problems of wildlife management and brief account of the investigations required to solve them. Estimates of the populations of pheasants and other game birds, deer, and muskrats, in relation to open seasons, are given most space. Studies of waterfowl, their food plants, and feeding habits also are mentioned.

Research: Cover mapping

Graham, Samuel A. Ecological classification of cover types, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 182-190, 3 tables.

The system developed in Michigan by Wight and associates has proved plastic in use and is recommended for more extended trial. Its principles and symbols are explained.

Research: Flushing tube

Vogtman, Donald B. Flushing tube for determining food of game birds, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 255-257, 1 fig.

Device for removal by flushing of the crop contents of living birds described and illustrated.

Research: Versatile boat

Williams, C. S., and G. H. Jensen. A versatile boat for waterfowl management and research, Journ. Wildlife Management (P. F. English, 206 Forestry Bldg., State College, Pa. $1.00 a copy), 9(3), July 1945, pp. 191-192, Pls. 6-7.

Description and illustrations of a boat driven by airplane motor and propeller that can travel over any surface from wet mud to deep water, has space for passengers and equipment, yet can be handled by one man. It has proved satisfactory in botulism studies at Bear River, Utah; suggestions for a number of other uses are made.

Weights: Bird

Marshall, Wm. H., and Arnold B. Erickson. Weights of some Minnesota birds, Flicker (Arnold B. Erickson, University of Minnesota, Minneapolis), 17(2), May 1945 (received August), pp. 32-36.

Compilation of records from a number of sources; 59 species represented, game birds most numerously, in most cases sex is recorded.

WILDLIFE LEAFLETS

Issues of interest to wildlife managers additional to those previously mentioned are listed below. Copies of these mimeographed leaflets can be obtained from the Fish and Wildlife Service, U. S. Department of the Interior, Chicago 54, Ill.

267. Some recent publications on management and propagation of waterfowl, by Ralph B. Nestler, 5 pp., April 1945.

Bibliography of periodicals, books, and other publications, with addresses of publishers, mostly arranged by subjects. Supersedes Wildlife Leaflet 183, issued in 1941.

269. How to control vagrant cats, 2 pp., 2 figs., May 1945.

Brief statement of the status of such cats; description and illustrations of a home-made cat trap; notes on commercial traps and on trapping methods. Supersedes U. S. Dept. of Agriculture Leaflet 50, issued in 1929.

271. Tularemia, an animal-borne disease, 4 pp., May 1945.

Nature and history of the disease, symptoms in man, symptoms and lesions in rabbits, other animals known to be susceptible, protective measures, quarantine of transplanted rabbits. Supersedes Wildlife Research and Management Leaflet BS-5, issued in 1935.

273. Malheur National Wildlife Refuge--Oregon, 8 pp., July 1945.

General description, topography, and history of the refuge, birds and mammals found there, bird banding carried on, list of interesting features, statement of economic use, and tourist information.

274. Status of migratory game birds: 1944-45, 10 pp., 2 tables, July 1945.

Annual report on migrations, breeding and wintering ground surveys, and January inventory, with comment on several species of special conservation interest. The inventory indicated 6 percent fewer waterfowl than in 1944.

276. Annual fur catch of the United States, 22 pp., July 1945.

Statistics by States and other geographic subdivisions for the take of leading species in recent years. "The raw-fur catch in the United States for the season 1944-45 was estimated to be worth between 75 and 100 million dollars. Retail sales of finished products exceeded $425,000,000.

NOTES AND NEWS

The Council of the Society of American Foresters has approved the organization of a Division of Forest-Wildlife Management. Officers are: Chairman, Neil W. Hosley; Vice Chairman, Paul D. Dalke; and Secretary, David B. Cook. In addition to these, the Executive Committee includes Lloyd W. Swift and Warren W. Chase.

"A curriculum in wildlife conservation has been organized at the University of California. Proposed by the Department of Forestry, the project met with the full support of the Department of Zoology and of the Museum of Vertebrate Zoology. The first two years of the four-year program are devoted to underlying sciences and to courses helpful in attaining breadth of outlook. The junior and senior years include 17 units of forestry, 15 units of zoology, and 30 units of animal nutrition, botany, entomology, geography, and plane surveying.

"The curriculum leads to the A.B. degree in the college of Letters and Science. It will be administered by the Department of Zoology in close cooperation with the Museum of Vertebrate Zoology and the Department of Forestry. The great collections of the California Museum of Vertebrate Zoology (90,000 specimens of birds, 105,000 of mammals) and of the University of California Herbarium (900,000 specimens) supplement the rich local flora and fauna. The Forestry Department's 2600-acre Blodgett Forest, with its many types of plant cover, can be used to advantage."--Walter Mulford (Journ. Forestry, 43(6), June 1945, p. 455).

"For $35-a-month rent, the Electronic Trap Co. of Rochester, N. Y. offers a highly scientific rat eradicator. Taking advantage of the fact that rats fear blind alleys and new paths, the electronic rat trap is a floorless, open-ended box placed over a favorite rat run. The rat, seeing nothing suspicious, thinks he can scoot straight through. But the instant he is inside the trap--bang! An electronic eye slams down two doors, one in front and one behind him.

"Seeking escape by the only likely-looking 'exit,' he pops through a little side door. An electric shock tickles his feet. He bolts up a ramp to a death chamber where electric contacts finish him off and dump his body into a wire basket. Meanwhile, the trap resets itself for another victim. The whole cycle takes about three minutes.

"The invention looks like a Rube Goldberg contraption, somewhat streamlined. But apparently it works, often catching as many as 24 rats a night. The manufacturer claims that he has paying customers for all the traps he can make." (Time, 46(14), Oct. 1, 1945, p. 50.)

RECEIVED
JUL 24 1952

AUTHOR INDEX FOR THIS ISSUE

	Page
Abbott, Jacob B.	21
Addis, C. J.	14
Aldous, Shaler E.	17
Allen, Glover M.	10
Allen, Ralph H., Jr.	19
Bach, Roy N.	8
Baylis, H. A.	16
Beaudette, F. R.	15
Bellrose, Frank C., Jr.	17, 26
Bennitt, Rudolf	25
Breckenridge, W. J.	31
Brooks, Maurice G.	31
Bryant, Monroe D.	2
Burroughs, A. R.	11
Cagle, Fred R.	20, 23
Chandler, Asa C.	13
Cook, David B.	23, 27
Cook, Faxon W.	24
Cowan, Ian McTaggart	20
Curtis, James D.	18
Dalke, Paul D.	15
Dasmann, William	28
Davis, David E.	7
Davis, William B.	22, 23
Day, Albert M.	3
Dice, Lee R.	23
Dikmans, G.	14
Dobyns, Harold W.	6
Dougherty, Ellsworth C.	12
Dower, John	4
Dozier, Herbert L.	22
Edminster, Frank C.	27
Ekdahl, Vernon	4
Enderlin, R. W.	27
English, P. F.	25
Erickson, Arnold B.	15, 34
Errington, Paul L.	33
Fallis, A. Murray	12
Farner, Donald S.	22
Fisher, James	8
Glading, Ben	27
Glegg, Wm. E.	17
Graham, Samuel A.	34
Green, Dorr D.	6
Greenwell, Guy A.	25
Gross, Alfred O.	20, 21
Haecker, F. W.	31
Hahn, Henry C.	24
Hall, E. Raymond	2
Harper, Francis	9
Hazeltine, Benjamin M.	4
Herman, Carlton M.	33
Hibbard, Claude W.	32
Hill, Norman P.	8
Hjersman, Henry A.	27
Holdenried, R.	11
Holland, Henrietta	2
Hope, C. E.	9
Hotchkiss, Neil	30
Hurd, C. A.	5
Jacobsen, W. C.	5
Jackson, A. S.	21
Jackson, Earl	23
Jellison, Wm. L.	11, 14
Jensen, G. H.	34
Joeris, Leonard	22
Jones, Chas. G.	9
Kalmbach, E. R.	6
Krauch, Hermann	18
Laessle, Albert M.	19
Langford, R. R.	8, 9
Lay, Daniel W.	27
LeBarron, Russel K.	17
Lester, Charles T.	14
Lincoln, Frederick C.	3, 26
Logier, E. B. S.	9
Longanecker, D. S.	11
Lucker, John T.	14
Mackie, R. E.	9
Marchand, Lewis J.	16
Marshall, Wm. H.	34
Markley, Merle H.	16
Mason, C. Russell	24
Massey, A. B.	19
McClure, H. Elliott	8
Meyer, K. F.	11
Mohler, Levi M.	6, 33
Morgan, Banner Bill	13
Morris, Percy A.	32
Morris, R. F.	7
Moser, R. Allyn	31
Moyle, John B.	30
Munro, J. A.	31
Neff, Johnson A.	13

	Page
Nagel, Werner O.	29
Nestler, Ralph B.	11, 28, 35
Odum, Eugene P.	31
Palmer, E. Laurence	16
Pearson, Allen M.	19
Pearson, Oliver P.	22
Porsild, A. E.	32
Portman, Roland W.	15
Preble, Norman A.	15
Rankin, John S., Jr.	13
Richter, Curt P.	10
Roberts, Thomas S.	32
Roebuck, A.	17
Ruble, Ralph W.	30
Rumreich, A. S.	11
Sampson, Frank W.	5
Saugstad, Stanley	18
Savage, James	9
Schantz-Hansen, T.	18
Schonberger, Clinton F.	19, 20
Schwartz, Charles W.	7
Scott, Thomas G.	33
Self, J. Teague	14
Solman, Victor E. F.	32
Stoner, Dayton	10
Stoner, Lillian C.	10
Studholme, Allan T.	28
Surber, Thaddeus	32
Swanson, Gustav	32
Swenk, Jane B.	31
Swift, Lloyd W.	25, 26
Tansley, A. G.	4
Taylor, Walter P.	2
Temple, Joe L.	29
Thomsen, Hans Peter	21
Treat, Dorothy A.	2
Twomey, Arthur C.	16
Van Cleave, Harley J.	12
Vogtman, Donald B.	34
Webster, J. Dan	14
Williams, C. S.	34
Wilson, L. Wayne	15
Wirth, Willis W.	12
Woodbury, Angus M.	21
Woodbury, Marian	21
Wynn, R. S.	11
Young, Stanley P.	6

12845

1945

Page

10
10
28
32
32
31
26
4
2
29
21
2
16
12
34
14
34
15
12
21
21
11
6